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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/781,324
Filing Date: February 13, 2001
Appellant(s): KONAKA, YOSUKE

John C. Garvey
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7 June 2005.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

***(5)* Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

(i) Takizawa et al. US Patent 5,739,596; and

(ii) Pole, II et al. US Patent 6,272,642 B2.

(9) Ground of Rejection

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 15, and 25 – 34, are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. [hereinafter as Takizawa], Us Patent 5,739,596, and further in view of Pole,II et al. [hereinafter as Pole], US Patent 6,272,642 B2.

As to claims 1 – 3, and 25 – 27, Takizawa discloses an electronic apparatus and method for power delivery with power supply system which includes pluralities of main batteries detachably mounted [main batteries are inserted and removed] comprising: a removal requirement receipt section [14, and 15 detector switch operates and generates an interrupt signal within battery controller when one of battery cover (45, 46) is opened] for receiving a removal requirement for a part of [101, 102 main battery packs] the mounted batteries [101, 102 main battery packs][col. 5, lines 40 - 59, col. 11, lines 17 - 26, fig. 1, 3A, 3C]; a processing ability determination section responsive to the removal requirement for determining whether a supplying possible electric power from the remaining batteries is capable [non-selected battery's charge level is determined that is sufficient] of maintaining a processing ability [col. 14, lines 45 – 47]; and a processing ability control section for controlling the operation of an apparatus operative or stop

depending upon the charge level is sufficient or not [col. 11, lines 17 - 26, col. 12, lines 24 - 62, col. 14, lines 30 - 60, fig. 5, 8].

However, Takizawa's does not teach about lower the processing ability while keeping the electronic apparatus operative in accordance with a decision from determination section that the electric power needs to lower the processing ability. In summary, Takizawa does not teach different modes of operation with different processing ability depending upon the available charge level determination of un-selected battery.

Pole teaches a system and method for managing system's different performance state, which is adapted to transition from a first performance to a lower activity states [C1, C2, C3] in response to the power management event while keeping the electronic apparatus operative and the power management event is generated in response to a change in system's power source [abstract, col. 1, lines 36 - 45, col. 2, lines 1 - 36, col. 4, lines 24 - 41, col. 6, lines 15 - 60, col. 7, lines 1 – 63].

It would have been an obvious to one of an ordinary skill in art, having the teachings of Takizawa and Pole in front of him at the time of invention was made, to modify the processing ability control section for controlling the operation of an apparatus operative or stop depending upon the charge level is sufficient or not disclosed by Takizawa to include a transition to lower processing ability [lower performance state] in response to determination that low charge level instead of directly stop state which prevent system reset, and the signal VRPWRGD is maintained active during the performance state transition by control logic and system may trigger a performance

state change including an over a temperature condition where a predefined temperature threshold in a thermal zone of computer system has been violated , and system usage is monitored, with events generated to trigger switching to a lower performance state if usage is low which obviously also lengthen the life of battery [col. 6, lines 15 – 38].

As to claims 4 - 6, Takizawa teaches a portion [processor] receiving a clock [internal clock] and operative in synchronism with clock [external clock] while consuming an electronic power according to a repetitive frequency of clock [internal clock frequency settings], wherein processing ability control section changes [changing] over the frequency [frequency settings] of the clock [internal clock] to control the processing ability [col. 4 lines l - 61, col. 5, lines 1 5 - 39, col. 6, lines 1 – 4].

As to claims 7 - 8, Takizawa teaches display section for displaying inhibit or acceptance of the removal of battery with corresponding LED on [col. 5, lines 4 - 36, fig. 8].

As to claim 9 - 12, and 30 - 33, Takizawa teaches monitoring section for monitoring residual electric power by measuring voltage and current of mounted batteries and determines residual electric power [battery controller monitors by measuring voltage level and current of battery pack][col.7, 37 - 48, col. 13, lines 52 - 67, col. 14, lines 1 – 10].

As to claims 13 - 15, Takizawa teaches plurality of main batteries, which are chargeable (rechargeable) batteries and capable of being mounted on an electronic apparatus [col. 5, lines 40 - 45, col. 3, lines 5 - 21, fig. 2, 3A-3C, 4].

As to claims 28 – 29, Takizawa teaches processing ability determining section [107, battery controller] determines whether an electric power supplying ability [battery voltage] is insufficient with only remaining batteries, and display section displaying inhibit [displaying and/or acoustic alarm] or acceptance of the removal of battery [col. 8, lines 1 – 21, col. 9, lines 4 – 14, and 54 - 60].

Claims 16 - 24, and 34 - 42 are rejected under 35 U.S.C. I 03(a) as being unpatentable over Takizawa et al. [hereinafter as Takizawa], Us Patent 5,739,596, and further in view of Pole, II et al. [hereinafter as Pole], US Patent 6,272,642 82 as applied to claims 1 - 15, and 25 - 33 above, and further in view of Dunstan, US Patent 5,600,230.

As to claims 16 - 24, and 34 - 42, Takizawa discloses an electronic apparatus and method for power delivery with power supply system which includes pluralities of main batteries detachably mounted [main batteries are inserted and removed] comprising: a removal requirement receipt section [14, and 15 detector switch operates and generates an interrupt signal within battery controller when one of battery cover (45, 46) is opened] for receiving a removal requirement for a part of [101, 102 main battery packs] the mounted batteries [101, 102 main battery packs][col. 5, lines 40 - 59, col. 11, lines 17 - 26, fig. 1, 3A,3C]; a processing ability determination section responsive to the removal requirement for determining whether a supplying possible electric power from the remaining batteries is capable [non-selected battery's charge level is determined that is sufficient] of maintaining a processing ability [col. 14, lines 45 – 47]; and a processing ability control section for controlling the operation of an apparatus operative

or stop depending upon the charge level is sufficient or not [col. 11, lines 1 7 - 26, col. 12, lines 24 - 62, col. 14, lines 30 - 60, fig. 5, 8].

However, Takizawa's does not teach about lower the processing ability while keeping the electronic apparatus operative in accordance with a decision from determination section that the electric power needs to lower the processing ability. In summary, Takizawa does not teach different modes of operation with different processing ability depending upon the available charge level determination of un-selected battery.

Pole teaches a system and method for managing system's different performance state, which is adapted to transition from a first performance to a lower activity states [C1, C2, C3] in response to the power management event while keeping the electronic apparatus operative and the power management event is generated in response to a change in system's power source [abstract, col. 1, lines 36 - 45, col. 2, lines 1 - 36, col. 4, lines 24 - 41, col. 6, lines 15 - 60, col. 7, lines 1 – 63].

However, Takizawa and Pole teaches that the battery packs are capable of being mounted on electronic apparatus but non of them discloses that each of battery packs have a memory for storing a residual electric power of a battery of an associated battery pack.

Dunstan teaches a smart battery [82, fig. 4] includes a rechargeable battery [80], micro-controller [56], and memory [60] for storing different charge values [61 - 71 in fig. 4] including monitoring and calculating remaining capacity value by measuring battery's current [col. 8, lines 44 - 67, col. 9, lines 1 - 64, col. 10, lines 38 – 63].

It would have been an obvious to one of an ordinary skill in art, having the teachings of Takizawa, Pole and Dunstan in front of him at the time of invention was made to modify the processing ability control section for controlling the operation of an apparatus operative or stop depending upon the charge level is sufficient or not and replacing power source not limited to rechargeable alkaline, nickel-cadmium and nickel metal hydride batteries [col. 3, lines 12 – 15] disclosed by Takizawa to include a transition to lower processing ability [lower performance state] in response to determination that low charge level instead of directly stop state which prevent system reset, and the signal VRPWRGD is maintained active during the performance state transition by control logic and system may trigger a performance state change including an over a temperature condition where a predefined temperature threshold in a thermal zone of computer system has been violated , and system usage is monitored, with events generated to trigger switching to a lower performance state if usage is low which obviously also lengthen the life of battery [col. 6, lines 1 5 – 38]; and to include Dunstan's smart battery with rechargeable battery, memory, and controller which calculates and updates remaining capacity value based on battery current, and battery's characteristics and periodically compares capacity alarm value and sends capacity alarm signal when remaining capacity value is less than the alarm value which controls its own charge cycle to optimize charge time, prolong battery life, and prevent destructive charging conditions too [col. 3, lines 58 - 67, col. 4, lines 1 - 1 7, col. 7, lines 18 – 33].

For clarity in understanding the rejection the Examiner has prepared a claim chart for exemplary claim 1:

Table 1

Claimed limitations	Claimed invention	Prior art
An electronic apparatus to which a plurality of batteries are detachably mounted	A personal computer [100 in fig. 1] to which a plurality of batteries [1] are detachably mounted	In Takizawa a laptop computer [fig.1] to which plurality of batteries [101,102] are detachably mounted [replaceable, col. 5, lines 40 – 44, fig. 1 – 2]
Removal requirement receipt section	Removal requirement switches [13, in fig. 2] which receives a removal requirement as a result of depression of removal requirement buttons [102, fig. 1]	Cover detection switches [14, 15, fig. 1] which receives a removal requirement as a result of opening of battery cover [45, 46, fig. 1][col. 5, lines 40 – 59]
A processing ability determination section which is responsive to the removal requirement receipt section	A microprocessor [7, fig. 2] receives on-off information from removal requirement switches [13] and determines whether a	A battery controller [107, fig.1] receives on-off information from removal requirement switches [14, 15] [col. 12, lines 28 – 32]

	supply in possible electric power from remaining batteries is an electric power capable of maintaining a processing ability or an electric power which needs to lower the processing ability	and determines [by comparing battery voltage with reference voltage] whether a supply in possible electric power from remaining batteries [unselected battery whose cover is not opened] is an electric power [battery voltage] capable of maintaining a processing ability [is sufficient by comparing battery voltage with reference voltage, col. 7, lines 37 – 44, col. 12, lines 43 – 63, col. 14, lines 30 – 59, fig. 5, 6] or sends such information [when unselected battery voltage is less than the reference voltage Vref during comparison] to the main

		circuit [9, main CPU] for display and/or acoustic alarm [col. 8, lines 4 – 7]
A processing ability control section lowering the processing ability while keeping the electronic apparatus operative based on the decision from the processing ability determination section that the electric power needs to lower the processing ability	Microprocessor [7, fig. 2] which lowers the processing ability while keeping the electronic apparatus operative based on the decision from the processing ability determination section that the electric power needs to lower the processing ability [c7-c10, in fig. 7]	In Pole a processing ability control section [power management control logic 100] lowering the processing ability [by providing a control signals to the voltage regulator to adjust its voltage levels and to processor to adjust the processor's internal clock frequency, col. 4. lines 24 - 27] while keeping the electronic apparatus [a portable computer, notebook computer, a hand-held device col. 2, lines 1 – 2] operative [col. 1, lines 38 – 43] based on the decision [step 202,

		state change required in fig. 3] from the processing ability determining section that the electric power needs to lower the processing ability [power management control logic 100, detect power mode change and generate interrupt (different events may be used to trigger performance state transition, col. 6 lines 26 – 27) and request low activity state, steps 202 – 206 in fig. 3] [col. 1, lines 38 – 43, col. 4, lines 24 – 36]

(10) Response to Argument

A. Review of the prior art

This section contains no arguments.

B. Claims 1, 4, 7, 9, 11, 13, 16, 18, 20, 22, 23, 25, 28, 30, 32, 34, 36, 38, 40, and 41 are patentable over the prior art

In response to appellant's argument that none of the prior art teaches or suggests the feature "even if some batteries are removed, the apparatus is maintained in an operative state by lowering the processing ability of the electronic apparatus", it is noted that the features upon which applicant relies (i.e., "even if some batteries are removed, the apparatus is maintained in an operative state by lowering the processing ability of the electronic apparatus") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Appellant further argued that neither Takizawa nor Pole has any teachings or suggestion relating to the claimed "processing ability determining section" which set forth in claim 1. Examiner disagrees as Takizawa teaches processing ability determining section [107, Battery controller, in fig. 1]receives on-off information from removal requirement switches [14,15, col. 12, lines 28 - 32] and determines by comparing unselected battery voltage with reference voltage Vref [col. 7, lines 37 – 44, col. 12, lines 43 – 63, col. 14, lines 30 – 59, fig. 5, 6] whether a supply in possible electric power [battery voltage] is capable of [sufficient for] maintaining [sustain] a processing ability [computer operation][col. 9, lines 1 – 8][col. 7, lines 37 – 44, col. 12, lines 43 – 63, col. 14, lines 30 – 59, fig. 5, 6] or sends such information [interrupt] when unselected

battery voltage is less than the reference voltage Vref during comparison to main circuit [9, main CPU][col. 8, lines 2 – 7, col. 12, lines25 - 63].

Pole also teaches a processing ability control section [power management control logic 100] lowering the processing ability [by providing a control signals to the voltage regulator to adjust its voltage levels and to processor to adjust the processor's internal clock frequency, col. 4. lines 24 - 27] while keeping the electronic apparatus [a portable computer, notebook computer, a hand-held device col. 2, lines 1 – 2] operative [col. 1, lines 38 – 43] based on the decision [step 202, state change required in fig. 3] from the processing ability determining section that the electric power needs to lower the processing ability [power management control logic 100, detect power mode change and generate interrupt (different events may be used to trigger performance state transition, col. 6 lines 26 – 27) and request low activity state, steps 202 – 206 in fig. 3] [col. 1, lines 38 – 43, col. 4, lines 24 – 36].

Examiner is aware of establishing obviousness under ***35 USC § 103*** and has considered the claimed invention "as a whole" and pointed out claimed features with corresponding column and line reference with figures in prior art in rejection.

In response to appellant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to appellant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, examiner has provided reasoning as "lengthened the life of battery by triggering to lower performance state if usage is low" why one of ordinary skill in art would have been lead to combine these teachings. The factual support for the motivation can be found on column 6 in lines 36 – 38 of Pole reference.

C. Claims 2, 5, 8, 10, 12, 14, 17, 19, 21, 24, 26, 29, 31, 33, 5, 37, 39, and 42 are patentable over the prior art

Appellant's argues that Takizawa and Pole fail to disclose " a removal requirement receipt section receiving a removal requirement for a part of the mounted batteries". Examiner disagrees. Takizawa discloses a laptop computer [fig.1] to which plurality of batteries [101,102] are detachably mounted [replaceable, col. 5, lines 40 – 44, fig. 1 – 2]. And Cover detection switches [14, 15, fig. 1], which receive a removal requirement as a result of opening of battery, cover [45, 46, fig. 1][col. 5, lines 40 – 59] as explained in detail in Table 1.

Appellant's further argued that the feature "a processing ability control section responsive to removal requirement for a battery from the removal requirement receipt section to lower a processing ability while keeping the electronic apparatus operative" is not taught or suggested by Takizawa or Pole. Examiner disagrees. Pole teaches the limitations as set forth in the rejection and shown in the claim chart.

D. Claims 3, 15, 16, and 27 are patentable over the prior art

Appellant has argued that neither Takizawa nor Pole teaches or suggests "the feature of lowering processing ability in response to detection of removal of a battery". The examiner disagrees. Claims 3, 15, 16, and 27 do not require "lowering processing ability in response to detection of removal of a battery". Rather, they require lowering " a processing ability while keeping the electronic apparatus operative". Pole clearly teaches a processing ability control section [power management control logic 100] lowering the processing ability [by providing a control signals to the voltage regulator to adjust its voltage levels and to processor to adjust the processor's internal clock frequency, col. 4. lines 24 - 27] while keeping the electronic apparatus [a portable computer, notebook computer, a hand-held device col. 2, lines 1 – 2] operative [col. 1, lines 38 – 43] as discussed in rejection and shown in the claim chart.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin C. Patel whose telephone number is 571-272-3675. The examiner can normally be reached on 6:45 am - 5:15 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H. Browne can be reached on 571-272-3670. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nitin C. Patel
June 22, 2005

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